What is claimed:

1. An isolated polynucleotide comprising the nucleic acid sequence selected from the group consisting of:

(a) the polynucleotide sequence of SEQ ID NO: 1,

(b) the polynucleotide sequence of SEQ ID NO: 3.

(c) the polynucleotide sequence of SEQ ID NO: 14;

(d) the polynucleotide sequence of SEQ ID NO: 16;

(e) a polynucleotide that hybridizes under the following stringent conditions to the complement of any one of (a)-(e);

(1) hybridization at 65°C in a hybridization buffer comprising 0.5 M $NaHPO_4$, and

(2) washing at 65°C in a wash solution comprising 1x SSC.

2. An isolated polypeptide encoded by the polynucleotide of claim 1.

3. An isolated polypeptide of claim 2, wherein the polypeptide comprises the amino acid sequence of SEQ ID NO: 2.

4. An isolated polypeptide of claim 2, wherein the polypeptide comprises the amino acid sequence of SEQ ID NO: 15.

5. An antibody that specifically bind a polypeptide of claim 2.

6. A composition comprising the polynucleotide of claim 1 and a carrier.

7. A composition comprising the polypeptide of claim 2 and a carrier.

8. A method of detecting the Hydin gene comprising steps of:

(a) contacting a biological sample with a compound that binds to the polynucleotide of claim 1; and

(b) detecting binding between the compound and the polynucleotide, wherein binding indicates the presence of the Hydin gene in the sample.

9. A method of detecting the Hydin polypeptide comprising steps of:

(a) contacting a biological sample with a compound that binds to the polypeptide encoded by the polynucleotide of claim 1; and

(b) detecting binding between the compound and the polypeptide,

wherein binding indicates the presence of the Hydin polypeptide in the sample.

10. The method of claim 9, wherein the compound that binds the polypeptide is an antibody,

11. A method of detecting a mutation in the human Hydin gene comprising steps of:

(a) contacting a biological sample with a compound that binds to the polynucleotide having the nucleic acid sequence of SEQ ID NO: 14; and

(b) detecting binding between the compound and the polynucleotide, wherein binding indicates the presence of a mutation in the human Hydin gene in the sample.

12. The method of claim 11, wherein the mutation is located at a position that corresponds to the position of the OVE459 mutation within the murine Hydin gene.

13. A method of diagnosing hydrocephalus in a human comprising detecting a mutation in the Hydin gene according to the method of claim 11; wherein the presence of the mutation in the human Hydin gene indicates a probability of the human developing hydrocephalus.

14. The method of claim 13 , wherein the mutation is located at a position that corresponds to the position of the OVE459 mutation within the murine Hydin gene.

15. The method of claim 14, wherein the mutation is detected in a prenatal human.

16. A method of diagnosing a cilia dysfunction-related disorder comprising detecting a mutation in the Hydin gene according to the method of claim 11; wherein the presence of the mutation in the Hydin gene indicates a probability of the developing a ciliary dysfunction-related disorder.

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17. The method of claim 16, wherein the cilia related disorder is selected from the group consisting of Kartagerner syndrome, primary cilia dyskinesia, chronic sinusitis, male infertility, deafness or kidney failure.